

1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-6 + 5x > 8x \text{ or } 3 + 5x < 6x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-5.33, -2.1]$  and  $b \in [0.07, 2.55]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.2, -2.9]$  and  $b \in [0.72, 2.54]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.1, -1.12]$  and  $b \in [2.92, 3.67]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.86, -1.35]$  and  $b \in [2.86, 3.55]$
  - E.  $(-\infty, \infty)$
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2. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-3}{5} - \frac{10}{7}x \geq \frac{-5}{3}x - \frac{9}{6}$$

- A.  $[a, \infty)$ , where  $a \in [-6, 0]$
  - B.  $(-\infty, a]$ , where  $a \in [-8.25, -3]$
  - C.  $[a, \infty)$ , where  $a \in [-0.75, 6]$
  - D.  $(-\infty, a]$ , where  $a \in [2.25, 5.25]$
  - E. None of the above.
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3. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{9}{7} - \frac{7}{6}x > \frac{-3}{3}x + \frac{6}{8}$$

- A.  $(-\infty, a)$ , where  $a \in [1.5, 3.75]$
- B.  $(-\infty, a)$ , where  $a \in [-4.5, -0.75]$
- C.  $(a, \infty)$ , where  $a \in [0, 4.5]$
- D.  $(a, \infty)$ , where  $a \in [-3.75, -1.5]$

E. None of the above.

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4. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 2 units from the number 7.

- A.  $(-\infty, -5) \cup (9, \infty)$
  - B.  $(-\infty, -5] \cup [9, \infty)$
  - C.  $(-5, 9)$
  - D.  $[-5, 9]$
  - E. None of the above
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5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4 + 8x < \frac{74x - 5}{9} \leq -6 + 7x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [12.75, 15.75]$  and  $b \in [1.5, 9]$
  - B.  $(a, b]$ , where  $a \in [12, 16.5]$  and  $b \in [2.25, 6]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [10.5, 18.75]$  and  $b \in [2.25, 5.25]$
  - D.  $[a, b)$ , where  $a \in [10.5, 16.5]$  and  $b \in [3.75, 12]$
  - E. None of the above.
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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5x + 5 > 8x + 8$$

- A.  $(a, \infty)$ , where  $a \in [-0.23, 0.79]$
- B.  $(a, \infty)$ , where  $a \in [-1, -0.15]$

- C.  $(-\infty, a)$ , where  $a \in [-0.1, 1.1]$
- D.  $(-\infty, a)$ , where  $a \in [-2.6, 0.2]$
- E. None of the above.

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$3 + 7x > 10x \text{ or } 3 + 4x < 5x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-4.5, 0.75]$  and  $b \in [-3.75, -0.75]$
- B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.05, -1.35]$  and  $b \in [-3, 0.75]$
- C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-0.75, 3.75]$  and  $b \in [0, 6]$
- D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-0.75, 1.12]$  and  $b \in [0.75, 7.5]$
- E.  $(-\infty, \infty)$

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8. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 3 units from the number 8.

- A.  $[-5, 11]$
- B.  $(-\infty, -5] \cup [11, \infty)$
- C.  $(-\infty, -5) \cup (11, \infty)$
- D.  $(-5, 11)$
- E. None of the above

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9 + 8x \leq \frac{35x + 3}{4} < -6 + 5x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-22.5, -7.5]$  and  $b \in [-6.75, 1.5]$
  - B.  $[a, b)$ , where  $a \in [-15.75, -12]$  and  $b \in [-3, 0.75]$
  - C.  $(a, b]$ , where  $a \in [-20.25, -11.25]$  and  $b \in [-2.4, -0.07]$
  - D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-16.5, -6.75]$  and  $b \in [-5.62, 1.35]$
  - E. None of the above.
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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x - 4 \leq 10x + 3$$

- A.  $(-\infty, a]$ , where  $a \in [0.29, 0.5]$
  - B.  $(-\infty, a]$ , where  $a \in [-0.82, 0.24]$
  - C.  $[a, \infty)$ , where  $a \in [-0.26, 0.47]$
  - D.  $[a, \infty)$ , where  $a \in [-0.77, -0.2]$
  - E. None of the above.
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